

**PATENT APPLICATION**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the Application of:

Masanori NAKAMUURA *et al.*

Group Art Unit: *To Be Assigned*

Application No.: *To Be Assigned*  
(Divisional of U.S. Patent Appl. No. 09/355,946;  
Filed: August 16, 1999)

Examiner: *To Be Assigned*

Filed: *Herewith*

Attorney Dkt. No.: 107318-00004

For: POLYOLEFIN ARTICLE AND METHODS FOR MANUFACTURE THEREOF

**PRELIMINARY AMENDMENT**

Commissioner for Patents  
Washington, D.C. 20231

Date: August 20, 2001

Sir:

Prior to initial examination of the application, please amend the above-identified application as follows:

**IN THE CLAIMS:**

Please cancel claims 9 and 10 without prejudice or disclaimer:

Please add new claims 13-24 as follows:

--13. (NEW) A method for manufacture of a polyolefin article characterized as including the steps of:

covering an oriented polyolefin material having a value of not exceeding  $5 \times 10^{-5}$  (/°C) for average coefficient of linear expansion in the 20 - 80 °C range with a layer of polyolefin having a melting point lower than that of said oriented polyolefin material;

subsequent to the covering with the polyolefin layer, effecting joining of the oriented polyolefin material by the application of pressure and heat at a temperature

below the melting point of the oriented polyolefin material but sufficient to soften or melt said covering polyolefin.

14. (NEW) The method for manufacture of a polyolefin article as recited in claim 13, characterized in that said oriented polyolefin material comprises a plurality of oriented polyolefin sheets having minus values for average coefficient of linear expansion in the 20 - 80 °C range, and that an oriented or unoriented polyolefin sheet having a plus value for average coefficient of linear expansion in the 20 - 80 °C range is interposed between adjacent ones of said oriented polyolefin sheets covered with said polyolefin layer for subsequent joining by the application of pressure and heat.

15. (NEW) The method for manufacture of a polyolefin article as recited in claim 13, characterized in that said oriented polyolefin material is prepared by subjecting an oriented polyolefin material having a value of not exceeding  $5 \times 10^{-5}$  (/°C) for average coefficient of linear expansion in the 20 - 80 °C range to a heat treatment so that only its surface layer melts while its central portion is left unmelted, whereby only its molecular orientation at the surface layer is relaxed while its molecules at the central portion is kept oriented, and the surface layer melts at a lower temperature than does the central portion.

16. (NEW) The method for manufacture of a polyolefin article as recited in claim 15, wherein the melting point of the surface layer, which is measured by DSC, is reduced within a range of 133 - 140 °C due to said heat treatment, while melting point of the central portion, which is measured by DSC under a constant tension, falls within a range of 140 - 150 °C, said polyolefin material subjected under said heat treatment is jointed for integration while maintaining a crystallized orientation of its central portion.

17. (NEW) The method for manufacture of a polyolefin article as recited in claim 14, characterized in that said oriented polyolefin material is prepared by subjecting an oriented polyolefin material having a value of not exceeding  $5 \times 10^{-5}$  (/°C) for average coefficient of linear expansion in the 20 - 80 °C range to a heat treatment so that only its

surface layer melts while its central portion is left unmelted, whereby only its molecular orientation at the surface layer is relaxed while its molecules at the central portion is kept oriented, and the surface layer melts at a lower temperature than does the central portion.

18. (NEW) The method for manufacture of a polyolefin article as recited in claim 17, wherein the melting point of the surface layer, which is measured by DSC, is reduced within a range of 133 - 140 °C due to said heat treatment, while melting point of the central portion, which is measured by DSC under a constant tension, falls within a range of 140 - 150 °C, said polyolefin material subjected under said heat treatment is jointed for integration while maintaining a crystallized orientation of its central portion.

19. (NEW) The method for manufacture of a polyolefin article as recited in claim 13, characterized as including the steps of:

subjecting an oriented polyolefin material having a value of not exceeding  $5 \times 10^{-5}$  (/°C) for average coefficient of linear expansion in the 20 - 80 °C range to a heat treatment so that its surface melts; and

effecting joining of said oriented polyolefin material by the application of pressure and heat at a temperature below a melting point of the heat-treated oriented polyolefin material but sufficient to melt said surface.

20. (NEW) The method for manufacture of a polyolefin article as recited in claim 14, characterized as including the steps of:

subjecting an oriented polyolefin material having a value of not exceeding  $5 \times 10^{-5}$  (/°C) for average coefficient of linear expansion in the 20 - 80 °C range to a heat treatment so that its surface melts; and

effecting joining of said oriented polyolefin material by the application of pressure and heat at a temperature below a melting point of the heat-treated oriented polyolefin material but sufficient to melt said surface.

21. (NEW) The method for manufacture of a polyolefin article as recited in claim 15, characterized as including the steps of:

subjecting an oriented polyolefin material having a value of not exceeding  $5 \times 10^{-5}$  ( $^{\circ}\text{C}$ ) for average coefficient of linear expansion in the 20 - 80  $^{\circ}\text{C}$  range to a heat treatment so that its surface melts; and

effecting joining of said oriented polyolefin material by the application of pressure and heat at a temperature below a melting point of the heat-treated oriented polyolefin material but sufficient to melt said surface.

22. (NEW) The method for manufacture of a polyolefin article as recited in claim 16, characterized as including the steps of:

subjecting an oriented polyolefin material having a value of not exceeding  $5 \times 10^{-5}$  ( $^{\circ}\text{C}$ ) for average coefficient of linear expansion in the 20 - 80  $^{\circ}\text{C}$  range to a heat treatment so that its surface melts; and

effecting joining of said oriented polyolefin material by the application of pressure and heat at a temperature below a melting point of the heat-treated oriented polyolefin material but sufficient to melt said surface.

23. (NEW) The method for manufacture of a polyolefin article as recited in claim 17, characterized as including the steps of:

subjecting an oriented polyolefin material having a value of not exceeding  $5 \times 10^{-5}$  ( $^{\circ}\text{C}$ ) for average coefficient of linear expansion in the 20 - 80  $^{\circ}\text{C}$  range to a heat treatment so that its surface melts; and

effecting joining of said oriented polyolefin material by the application of pressure and heat at a temperature below a melting point of the heat-treated oriented polyolefin material but sufficient to melt said surface.

24. (NEW) The method for manufacture of a polyolefin article as recited in claim 18, characterized as including the steps of:

subjecting an oriented polyolefin material having a value of not exceeding  $5 \times 10^{-5}$  ( $^{\circ}\text{C}$ ) for average coefficient of linear expansion in the 20 - 80  $^{\circ}\text{C}$  range to a heat treatment so that its surface melts; and

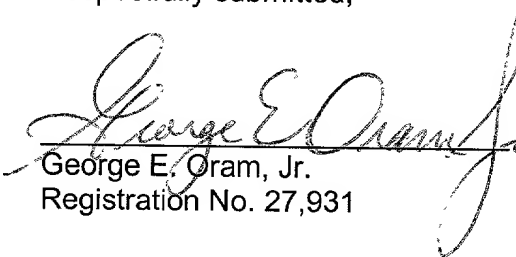
effecting joining of said oriented polyolefin material by the application of pressure and heat at a temperature below a melting point of the heat-treated oriented polyolefin material but sufficient to melt said surface.--

#### REMARKS

Claims 13-24 are pending in this application. These claims are directed to the subject matter of the binding process for a polyolefin article claimed in original claims 9 and 10. No new matter is contained in the amendments.

Please charge any fee deficiency or credit any overpayment to Deposit Account No. 01-2300.

Respectfully submitted,

  
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